

Docket No. 249108US3CONT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF: Shuhei YADA, et al.

SERIAL NO: NEW APPLICATION

GAU:

FILED: HEREWITH

EXAMINER:

FOR: DISTILLATION APPARATUS FOR READILY POLYMERIZABLE COMPOUND

INFORMATION DISCLOSURE STATEMENT UNDER 37 CFR 1.97

COMMISSIONER FOR PATENTS
ALEXANDRIA, VIRGINIA 22313

SIR:

Applicant(s) wish to disclose the following information.

REFERENCES

- ☒ The applicant(s) wish to make of record the references cited in the International Search Report listed on the attached form PTO-1449. Copies of the listed references are attached, where required, as are either statements of relevancy or any readily available English translations of pertinent portions of any non-English language references.
- ☐ A check or credit card payment form is attached in the amount required under 37 CFR §1.17(p).

RELATED CASES

- ☐ Attached is a list of applicant's pending application(s) or issued patent(s) which may be related to the present application. A copy of the patent(s), together with a copy of the claims and drawings of the pending application(s) is attached along with PTO 1449.
- ☐ A check or credit card payment form is attached in the amount required under 37 CFR §1.17(p).

CERTIFICATION

- ☐ Each item of information contained in this information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this statement.
- ☐ No item of information contained in this information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application or, to the knowledge of the undersigned, having made reasonable inquiry, was known to any individual designated in 37 CFR §1.56(c) more than three months prior to the filing of this statement.

DEPOSIT ACCOUNT

- ☒ Please charge any additional fees for the papers being filed herewith and for which no check or credit card payment is enclosed herewith, or credit any overpayment to deposit account number 15-0030. A duplicate copy of this sheet is enclosed.

Respectfully submitted,

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF: Shuhei YADA, et al.

SERIAL NO.: NEW CONTINUATION APPLICATION

FILED: HERewith

FOR: DISTILLATION APPARATUS
FOR READILY POLYMERIZABLE
COMPOUND

STATEMENT OF RELEVANCY

References **AO-AP** on PTO Form 1449:

■ These references were cited in a corresponding International search report submitted herewith.

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Form PTO 1449 (Modified)		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTY DOCKET NO. 249108US3CONT		SERIAL NO. NEW APPLICATION	
LIST OF REFERENCES CITED BY APPLICANT				APPLICANT Shuhei YADA, et al.			
				FILING DATE HEREWITH		GROUP	
U.S. PATENT DOCUMENTS							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE IF APPROPRIATE
	AA						
	AB						
	AC						
	AD						
	AE						
	AF						
	AG						
	AH						
	AI						
	AJ						
	AK						
	AL						
	AM						
	AN						
FOREIGN PATENT DOCUMENTS							
		DOCUMENT NUMBER	DATE	COUNTRY	TRANSLATION YES NO		
	AO	200-256221	09-19-2000	JAPAN		X	
	AP	60-222105	11-06-1985	JAPAN		X	
	AQ	EP 1 095 685 A1	05-02-2001	EUROPEAN	X		
	AR	EP 1 029 573 A2	08-23-2000	EUROPEAN	X		
	AS	EP 0 827 765 A2	03-11-1998	EUROPEAN	X		
	AT	EP 1 029 572 A2	08-23-2000	EUROPEAN	X		
	AU	EP 1 057 804 A2	12-06-2000	EUROPEAN	X		
	AV						
OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, etc.)							
	AW						
	AX						
	AY						
	AZ					<input type="checkbox"/> Additional References sheet(s) attached	
Examiner					Date Considered		
*Examiner: Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.							

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP02/08428

A. CLASSIFICATION OF SUBJECT MATTER

Int.Cl⁷ B01D3/22, C07C57/07, 51/44

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Int.Cl⁷ B01D3/22, C07C57/07, 51/44

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Jitsuyo Shinan Koho	1926-1996	Jitsuyo Shinan Toroku Koho	1996-2002
Kokai Jitsuyo Shinan Koho	1971-2002	Toroku Jitsuyo Shinan Koho	1994-2002

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X /Y	JP 2000-256221 A (Mitsubishi Chemical Corp.), 19 September, 2000 (19.09.00), Full text; particularly, Claims; page 3, column 4, Par. No. [0010] to page 4, column 5, Par. No. [0014] (Family: none)	1, 4-5, 7, 16-18 /2-3, 6, 20
X /Y	JP 60-222105 A (Mitsui Toatsu Chemicals, Inc.), 06 November, 1985 (06.11.85), Full text; Fig. 1; particularly, "distilling column 8, reboiler 9" (Family: none)	8, 12 /2, 9-11
Y	EP 1095685 A1 (Nippon Shokubai Co., Ltd.), 02 May, 2001 (02.05.01), Full text; Figs. 1, 3 & JP 2001-190901 A Full text; Figs. 1, 3 & CN 1294028 A	9-11

☒ Further documents are listed in the continuation of Box C.☐ See patent family annex.

* Special categories of cited documents:
 "A" document defining the general state of the art which is not considered to be of particular relevance
 "E" earlier document but published on or after the international filing date
 "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
 "O" document referring to an oral disclosure, use, exhibition or other means
 "P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
 "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
 "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
 "&" document member of the same patent family

Date of the actual completion of the international search
17 October, 2002 (17.10.02)Date of mailing of the international search report
29 October, 2002 (29.10.02)Name and mailing address of the ISA/
Japanese Patent Office

Authorized officer

Facsimile No.

Telephone No.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP02/08428

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X /Y	EP 1029573 A2 (Nippon Shokubai Co., Ltd.), 23 August, 2000 (23.08.00), Full text; Figs. 1, 3 & JP 2000-300903 A Full text; Fig. 1, 3; particularly, Claims; page 3, column 4, Par. Nos. [0031] to [0032]; page 4, column 5, Par. Nos. [0044] to [0045]; page 8, column 13, Par. No. [0103] & BR 200000693 A & CN 1263787 A & KR 2001006653 A & ZA 200000739 A	13-15 /6
X /Y	EP 827765 A2 (Nippon Shokubai Co., Ltd.), 11 March, 1998 (11.03.98), Full text; Fig. 1 & JP 10-118473 A Full text; Fig. 1; particularly, page 4, column 5, Par. No. [0019]; page 8, column 14, Par. No. [0068]; "liquid-carrying tube" & KR 98018985 A & TW 393339 A & US 6123323 A	19 /3,20
A	EP 1029572 A2 (Nippon Shokubai Co., Ltd.), 23 August, 2000 (23.08.00), Full text & JP 2000-239229 A Full text & CN 1263786 A	8
A	EP 1057804 A2 (Nippon Shokubai Co., Ltd.), 06 December, 2000 (06.12.00), Full text & JP 2000-344711 A Full text & BR 200002561 A & CN 1276363 A & KR 2001007177 A & ZA 200002723 A	16-18

INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP02/08428

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

(continued to extra sheet)

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☒ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest ☐ The additional search fees were accompanied by the applicant's protest.
☐ No protest accompanied the payment of additional search fees.

Continuation of Box No.II of continuation of first sheet (1)

The technical features in Claims 1, 8, 13, 16, and 19 independent of each other are that:

* In Claim 1, the exhaust gas pipe of a reduced pressure generator is connected to a connection pipe between a distillation tower and the reduced pressure generator through a pressure regulating valve,

* In Claim 8, a leading tubular member for leading tower bottom fluid to a reboiler is arranged continuously with the side face of a tower body,

* In Claim 13, the positions of opening parts in the non-gate porous plate of a distillation tower, the value of the ratio of the local opening percentage and the cross sectional area of the tower to the total area of all opening parts, amount of fluid falling along the edges of the opening parts, diameter of the distillation tower, and density of oxygen in tower gas are specified in the method of distilling (meta) acrylic acid,

* In Claim 16, polymerization inhibitor solution is mixedly manufactured by using waste water including (meta) acrylic acid generated from a vacuum source in a preliminary refining process and/or refining process for manufacturing the (meta) acrylic acid, and

* In Claim 19, a surrounding projected wall suspended from the rear surface of a tray is provided on the lower end outer periphery of a hole in the tray.

There is no common matter in these points considered to be a special technical feature in the meaning of the second sentence of PCT Rule 13.2 and, therefore, these inventions are not so technically related as to include one or more same or corresponding special technical features. As a result, they are not considered to be so related as to form a single general inventive concept.